



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/798,574	03/12/2004	Hoon Kim	P57012	6505

7590 05/02/2005
Robert E. Bushnell
Suite 300
1522 K Street, N.W.
Washington, DC 20005

EXAMINER

DICKEY, THOMAS L

ART UNIT PAPER NUMBER

2826

DATE MAILED: 05/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/798,574

Applicant(s)

KIM, HOON

Examiner

Thomas L. Dickey

Art Unit

2826

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 March 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 7-12 and 17-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 13-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-20 are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 11/01/2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Art Unit: 2826

DETAILED ACTION

1. The amendment filed on 03/14/2005 has been entered.

Election/Restriction

2. Applicant's election with traverse of Group II, claims 1-6 and 13-16, in the reply filed on 03/14/2005 is acknowledged. The traversal is on the ground(s) that "The structure implied by the process steps should be considered when assessing the patentability of product-by-process claims over the prior art... where the manufacturing process steps would be expected to impart distinctive structural characteristics to the final product. See, e.g., *In re Garnero*, 412 F.2d 276, 279, 162 USPQ 221, 223 (CCPA 1979) (holding "inter-bonded by interfusion" to limit structure of the claimed composite and noting that terms such as "welded " "intermixed " ground in place," "press-fitted" and "etched" are capable of construction as structural limitations.)"

This is not found persuasive because at least three limitations of method claims 7 and 17 are simply not capable of imparting distinctive structural characteristics. These limitations are first, performing a step of treating the surface of the activation layer, second, performing etching steps during activation layer forming and surface treatment, and third, performing a step of controlling etching times in the activation layer forming step and the surface treatment step. These are steps that are "optional," as far as the

Art Unit: 2826

device of claims 1-6 and 13-16 is concerned, because the device of claims 1-6 and 13-16 could be made without performing these steps.

The requirement is still deemed proper and is therefore made FINAL.

Applicant argues *In re Ochiai*. *Ochiai* rejoinder only applies where there are allowable product claims and withdrawn product claims that include all limitations of the allowable product claims. Currently there are no allowable product claims. Should Applicant amend his product claims Applicant is encouraged to simultaneously amend his withdrawn product claims to include all limitations of the product claims. Should one or more product ultimately prove allowable, the Examiner will rejoin withdrawn product claims that meet the *Ochiai* criteria.

Oath/Declaration

3. The oath/declaration filed on 03/12/2004 is acceptable.

Drawings

4. The formal drawings filed on 03/12/2004 are acceptable.

Priority

5. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Art Unit: 2826

Information Disclosure Statement

6. The Information Disclosure Statement filed on 11/01/2004 has been considered.

Specification

7. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claims 3-6, 15, and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A. In claim 3, line 2, "SPC polysilicon" has no antecedent basis. Furthermore, according to applicant's specification, "SPC" refers to a method of crystallizing amorphous silicon into polycrystalline silicon, known as "solid phase crystallization." The art is familiar with this method. Claim 3 will be examined under the assumption that "thickness of SPC polysilicon" means – further comprising a polysilicon layer, formed by the SPC method, and having a thickness... –

Art Unit: 2826

B. In claim 4, line 2, "ELA polysilicon" has no antecedent basis. Furthermore, according to applicant's specification, "ELA" refers to a method of crystallizing amorphous silicon into polycrystalline silicon, known as "excimer laser annealing." The art is familiar with this method. Claim 4 will be examined under the assumption that "thickness of ELA polysilicon" means – further comprising a polysilicon layer, formed by the ELA method, and having a thickness... –

C. In claim 5, line 2, "SPC polysilicon" has no antecedent basis. Furthermore, according to applicant's specification, "SPC" refers to a method of crystallizing amorphous silicon into polycrystalline silicon, known as "solid phase crystallization." The art is familiar with this method. Claim 5 will be examined under the assumption that "thickness of SPC polysilicon" means – further comprising a polysilicon layer, formed by the SPC method, and having a thickness... –

D. In claim 6, line 2, "ELA polysilicon" has no antecedent basis. Furthermore, according to applicant's specification, "ELA" refers to a method of crystallizing amorphous silicon into polycrystalline silicon, known as "excimer laser annealing." The art is familiar with this method. Claim 6 will be examined under the assumption that "thickness of ELA polysilicon" means – further comprising a polysilicon layer, formed by the ELA method, and having a thickness... –

E. In claim 15, line 2, "SPC polysilicon" has no antecedent basis. Furthermore, according to applicant's specification, "SPC" refers to a method of crystallizing

Art Unit: 2826

amorphous silicon into polycrystalline silicon, known as "solid phase crystallization." The art is familiar with this method. Claim 15 will be examined under the assumption that "thickness of SPC polysilicon" means – further comprising a polysilicon layer, formed by the SPC method, and having a thickness... –

F. In claim 16, line 2, "ELA polysilicon" has no antecedent basis. Furthermore, according to applicant's specification, "ELA" refers to a method of crystallizing amorphous silicon into polycrystalline silicon, known as "excimer laser annealing." The art is familiar with this method. Claim 16 will be examined under the assumption that "thickness of ELA polysilicon" means – further comprising a polysilicon layer, formed by the ELA method, and having a thickness... –

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1,2,4,6,13,14, and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by BUSTA (4,949,141).

A. With regard to claims 1,2,4, and 6 Busta discloses a thin film transistor comprising a buffer layer 12-32 formed on a substrate 10; an 8000 angstrom thick (Note

Art Unit: 2826

column 5 line 9. The thickness of the activation layer 34 must be known to know whether the reference meets the claims) activation layer 34 formed on said buffer layer 12-32, and a gate insulation layer 40 having a thickness of at least 1,000 angstroms (1200-2000 angstroms, see column 5 line 20) formed on said substrate 10 including said activation layer 34, with said buffer layer 12-32 having a 750 angstrom (column 5 line 9 discloses a 500-1500 angstrom range) step 32 (the size of the step 32 is defined by projecting buffer layer part 32. The projecting part and the step 32 it creates will be interchangeably referred to as part "32") formed between a lower part of said activation layer 34 and a part except said lower part of said activation layer 34, said 750 angstrom step 32 being a half or less of the thickness sum (the sum of 8000, activation layer 34, and 1000, gate insulation layer 40, being 9000) of said activation layer 34 and gate insulation layer 40, and further comprising a 500 (500-1500 angstroms, note column 5 line 9) angstrom polysilicon layer 36. Note (figure 2B) that the thickness of the gate insulation layer 40 is not changed on said sidewall of said buffer layer 12-32 (the side wall of the buffer layer 12-32 is the sidewall of the step 32 portion of the buffer layer 12-32). Therefore the buffer layer 12-32 must have a step 32 to such a degree as to accomplish this visible result. Note figure 2B, column 4 lines 50-51, and column 5 lines 9,10, and 20 of Busta.

Art Unit: 2826

The applicant's claims 4 and 6 do not distinguish over the Busta reference regardless of the process used to form polysilicon layer 36, because only the final product is relevant, not the recited process of excimer laser annealing (ELA).

Note that a "product by process" claim is directed to the product per se, no matter how actually made. In re Hirao, 190 USPQ 15 at 17 (footnote 3). See also In re Brown, 173 USPQ 685; In re Luck, 177 USPQ 523; In re Fessmann, 180 USPQ 324; In re Avery, 186 USPQ 161; In re Wertheim, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); and In re Marosi et al., 218 USPQ 289, all of which make it clear that it is the patentability of the final product per se which must be determined in a "product by process" claim and not the patentability of the process, and that an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not. Note that applicant has the burden of proof in such cases, as the above caselaw makes clear. See also MPEP 706.03(e).

B. With regard to claims 13, 14, and 16 Busta discloses a thin film transistor comprising a buffer layer 12-32, an 8000 angstrom thick (Note column 5 line 9. The thickness of the activation layer 34 must be known to know whether the reference meets the claims) activation layer 34 formed on said buffer layer 12-32, and a gate insulation layer 40 having a thickness of at least 1,000 angstroms (1200-2000 angstroms, see column 5 line 20) formed on said buffer layer 12-32 and said activation layer 34, with said buffer layer 12-32 having a 750 angstrom (column 5 line 9 discloses

Art Unit: 2826

a 500-1500 angstrom range) step 32 (the size of the step 32 is defined by projecting buffer layer 12-32 part 32. The projecting part and the step 32 it creates will be interchangeably referred to as part "32") formed between a lower part of said activation layer 34 and a part except said lower part of said activation layer 34, and said step 32 being up to a half of the thickness sum of said activation layer 34 and gate insulation layer 40. Note (figure 2B) that the thickness of the gate insulation layer 40 is deposited to an even thickness on a side wall of the activation layer 34. Therefore the step 32 must have been controlled (to such extent necessary) as to accomplish this visible result.

Note figure 2B, column 4 lines 50-51, and column 5 lines 9, 10, and 20 of Busta.

The applicant's claim 16 does not distinguish over the Busta reference regardless of the process used to form polysilicon layer 36, because only the final product is relevant, not the recited process of excimer laser annealing (ELA).

Note that a "product by process" claim is directed to the product per se, no matter how actually made. In re Hirao, 190 USPQ 15 at 17 (footnote 3). See also In re Brown, 173 USPQ 685; In re Luck, 177 USPQ 523; In re Fessmann, 180 USPQ 324; In re Avery, 186 USPQ 161; In re Wertheim, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); and In re Marosi et al., 218 USPQ 289, all of which make it clear that it is the patentability of the final product per se which must be determined in a "product by process" claim and not the patentability of the process, and that an old or obvious product produced by a new method is not patentable as a product, whether claimed in

Art Unit: 2826

“product by process” claims or not. Note that applicant has the burden of proof in such cases, as the above caselaw makes clear. See also MPEP 706.03(e).

Allowable Subject Matter

10. Claims 3, 5, and 15 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112 set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas L Dickey whose telephone number is 571-272-1913. The examiner can normally be reached on Monday-Thursday 8-6.

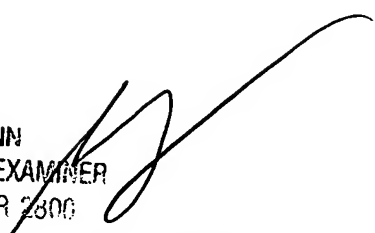
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J Flynn can be reached on 571-272-1915. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you

Art Unit: 2826

have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

NATHAN J. FLYNN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800



Thomas L. Dickey
Patent Examiner
Art Unit 2826
04/05